

The thin film deposition system for depositing a thin film on the surface of substrates disposed in a sealed thin film deposition furnace comprises a measuring unit at a site communicating with the thin film deposition furnace, the measuring unit comprising a thin film deposition sample substrate for allowing a thin film substance flowing in from the thin film deposition furnace to adhere while X-ray incidence and extraction windows being provided on the side walls of the measuring unit, wherein X-ray is irradiated on the thin film deposition sample substrate in the measuring unit through the X-ray incidence window by means of a thin film measuring unit provided at the outside of the thin film deposition furnace, and the X-ray reflected from the thin film deposition sample substrate is sensed through the X-ray extraction window.